

Qualified Vendors List (QVL), Model Name: GA-X99-UD4

DDR4 3300~3333MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.             | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|-------------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                         |       |            |           |             |         | 2 | 4 | 8 |     |        |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-4BZ1RR | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-4BZ1GY | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-4BZ1SW | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-2BZ1RR | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-2BZ1GY | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ133331604G-2BZ1SW | SS    | Samsung    |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4B3300C16      | SS    |            |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3300C16      | SS    |            |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4B3333C16      | SS    |            |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK8GX4M2B3333C16       | SS    |            |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK64GX4M4B3333C16      | DS    |            |           | 16-18-18-36 | 1.35v   | v |   |   | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3333C16Q-16GRKD      | SS    | SKhynix    |           | 16-16-16-36 | 1.35v   | v |   |   | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3300C16Q-16GRKD      | SS    |            |           | 16-16-16-36 | 1.35v   | v |   |   | v   | 2133   |
| GEIL            | 4GB     | 1Rx8                      | GLWR48GB333316DC        | SS    |            |           | 16-16-16-36 | 1.35v   | v |   |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX433C17PBK4/16         | SS    |            |           | 17-17-17-43 | 1.35v   | v |   |   | v   | 2133   |

DDR4 3200MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.         | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|---------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                     |       |            |           |             |         | 2 | 4 | 8 |     |        |
| Apacer          | 4GB     | 1Rx8                      | 78.BAGMD.AF20B      | SS    |            |           | 16-16-16-36 | 1.35v   | v | v |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4U32001604G-4CIR | SS    |            |           | CL16        | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4B3200C15  | SS    |            |           | 16-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK8GX4M2B3200C16   | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4B3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4C3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4C3200C15  | SS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK16GX4M2B3200C16  | DS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 1Rx8                      | CMD64GX4M8B3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v | v | v   | 2133   |
| CORSAIR         | 8GB     | 1Rx8                      | CMK64GX4M8B3200C16  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v | v | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK32GX4M2B3200C16  | DS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK64GX4M4B3200C16  | DS    |            |           | 16-18-18-36 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3200C16Q-16GRKD  | SS    | SKhynix    |           | 16-16-16-36 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3200C16Q-16GRK   | SS    |            |           | 16-16-16-36 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-3200C16Q-32GVK   | DS    |            |           | 16-16-16-36 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-3200C16D-16GVKB  | DS    |            |           | 16-18-18-38 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 8GB     | 1Rx8                      | F4-3200C14Q2-64GVK  | SS    | Samsung    |           | 14-14-14-34 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 1Rx8                      | F4-3200C15Q2-64GVR  | SS    |            |           | 15-15-15-35 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-3200C16Q-64GVK   | DS    | Samsung    |           | 16-18-18-38 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-3200C14Q-64GVK   | DS    | Samsung    |           | 14-14-14-34 | 1.35v   | v | v |   | v   | 2133   |
| GEIL            | 4GB     | 1Rx8                      | GPR416GB3200C16QC   | SS    |            |           | 16-16-16-36 | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX432C16PBK4/16     | SS    | SKhynix    |           | 16-16-16-39 | 1.35v   | v | v |   | v   | 2133   |
| PATRIOT         | 4GB     | 1Rx8                      | PV48G320C6K         | SS    |            |           | CL16        | 1.35v   | v |   |   | v   | 2133   |
| Panram          | 4GB     | 1Rx8                      | PUD43200C164G4NJW   | SS    | SKhynix    |           | 16-18-18-39 | 1.35v   | v |   |   | v   | 2133   |

DDR4 3000MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.          | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|----------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                      |       |            |           |             |         | 2 | 4 | 8 |     |        |
| ADATA           | 4GB     | 1Rx8                      | AX4U3000W4G16-BWZ    | SS    |            |           | 16-16-16    | 1.35    | v | v | v | v   | 2133   |
| ADATA           | 8GB     | 2Rx8                      | AX4U3000W8G16-BWZ    | DS    |            |           | 16-16-16    | 1.35    | v | v | v | v   | 2133   |
| ADATA           | 16GB    | 2Rx8                      | AX4U3000316G16       | DS    |            |           | 16-18-18-36 | 1.35    | v | v |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4U30001604G-4CIR  | SS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3000C15   | SS    | SKhynix    |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3000C15   | SS    | Samsung    |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4B3000C15   | SS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B3000C14   | SS    |            |           | 14-16-16-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK8GX4M2B3000C15    | SS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4B3000C15   | DS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD16GX4M2B3000C15   | DS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK32GX4M2B3000C15   | DS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK64GX4M4B3000C15   | DS    |            |           | 15-17-17-35 | 1.35v   | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK128GX4M8B3000C16  | DS    |            |           | 16-18-18-36 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3000C15Q-16GVR    | SS    |            |           | 15-15-15-35 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-3000C15Q2-32GRBB  | SS    |            |           | 15-16-16-35 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-3000C15Q-32GRK    | DS    |            |           | 15-15-15-35 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 1Rx8                      | F4-3000C14Q2-64GVK   | SS    |            |           | 14-14-14-34 | 1.35v   | v | v |   | v   | 2133   |
| G.SKILL         | 8GB     | 1Rx8                      | F4-3000C15Q2-64GVR   | SS    |            |           | 15-15-15-35 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-3000C14Q2-128GVKD | DS    |            |           | 14-14-14-34 | 1.35v   | v | v | v | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX430C15PB2K4/16     | SS    |            |           | 15-16-16    | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX430C15SB2K4/16     | SS    | SKhynix    |           | C15         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX430C15SB2K2/8      | SS    | SKhynix    |           | C15         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX430C15SB2/4        | SS    | SKhynix    |           | C15         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX430C15PBK4/32      | DS    |            |           | 15-16-16    | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX430C15SB2K4/32     | DS    | SKhynix    |           | C15         | 1.35v   | v | v |   | v   | 2133   |

|        |      |      |                              |    |         |                  |             |       |   |   |   |   |      |
|--------|------|------|------------------------------|----|---------|------------------|-------------|-------|---|---|---|---|------|
| HyperX | 8GB  | 2Rx8 | HX430C15SB2K2/16             | DS | SKhynix |                  | C15         | 1.35v | v | v |   | v | 2133 |
| HyperX | 8GB  | 2Rx8 | HX430C15SB2/8                | DS | SKhynix |                  | C15         | 1.35v | v | v |   | v | 2133 |
| HyperX | 16GB | 2Rx8 | HX430C16PB2K2/32             | DS |         |                  | C16         | 1.35v | v | v | v | v | 2133 |
| KLEVV  | 4GB  | 1Rx8 | KM4C4GX4A-3000-16-18-18-36-0 | SS |         |                  | 16-18-18-36 | 1.35v | v | v | v | v | 2133 |
| KLEVV  | 8GB  | 2Rx8 | IM48GU48A30-GIIHMC           | DS |         |                  | 16-18-18-36 | 1.35v | v | v |   | v | 2133 |
| Panram | 4GB  | 1Rx8 | PUD43000C154G4NJW            | SS | SKhynix |                  | 15-17-17-35 | 1.35v | v | v | v | v | 2133 |
| Team   | 8GB  | 2Rx8 | TCD48G3000C15ABK             | DS | SKhynix | H5AN4G8NMF8 523V | 15-15-15-35 | 1.35v | v | v |   | v | 2133 |

DDR4 2800MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.                  | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|------------------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                              |       |            |           |             |         | 2 | 4 | 8 |     |        |
| ADATA           | 4GB     | 1Rx8                      | AX4U2800W4G17-B              | SS    | SKhynix    |           | 17-17-17-36 | 1.2v    | v | v |   | v   | 2133   |
| ADATA           | 4GB     | 1Rx8                      | AX4U2800W4G17-BRZ            | SS    |            |           | 17-17-17-36 | 1.2v    | v | v |   | v   | 2133   |
| ADATA           | 8GB     | 2Rx8                      | AX4U2800W8G17-B              | DS    | SKhynix    |           | 17-17-17-36 | 1.2v    | v | v |   | v   | 2133   |
| ADATA           | 8GB     | 2Rx8                      | AX4U2800W8G17-BRZ            | DS    |            |           | 17-17-17-36 | 1.2v    | v | v | v | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4U28001504G-4CIR          | SS    |            |           | CL15        | 1.2v    | v | v |   | v   | 2133   |
| Avexir          | 8GB     | 2Rx8                      | AVD4U28001608G-4CIR          | DS    |            |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| Apacer          | 4GB     | 1Rx8                      | 78.BAGM8.AF20B               | SS    |            |           | 17-17-17-36 | 1.2v    | v | v | v | v   | 2133   |
| Apacer          | 8GB     | 2Rx8                      | 78.CAGM8.AF30B               | DS    |            |           | 17-17-17-36 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2800C16           | SS    | SKhynix    |           | 16-18-18-36 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4A2800C16           | SS    | SKhynix    |           | 16-18-18-36 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4A2800C16           | SS    | Samsung    |           | 16-18-18-36 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2800C16R          | SS    |            |           | 16-18-18-36 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD32GX4M4A2800C16           | DS    | SKhynix    |           | 16-18-18-36 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4A2800C16           | DS    | SKhynix    |           | 16-18-18-36 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK64GX4M8B2800C14           | DS    |            |           | 14-16-16-36 | 1.35v   | v | v | v | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD64GX4M8B2800C14           | DS    |            |           | 14-16-16-36 | 1.35v   | v | v | v | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMD128GX4M8B2800C14          | DS    |            |           | 14-16-16-36 | 1.35v   | v | v | v | v   | 2133   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-2800C16Q-16GRK            | SS    |            |           | 16-16-16-36 | 1.2v    | v | v |   | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2800C16Q-32GRK            | DS    |            |           | 16-16-16-36 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2800C15Q2-64GRK           | DS    |            |           | 15-16-16-35 | 1.25v   | v | v | v | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-2800C15Q2-128GRK          | DS    |            |           | 15-15-15-35 | 1.35v   | v | v | v | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX428C14PB2K4/16             | SS    | SKhynix    |           | 15-15-15-39 | 1.35v   | v | v | v | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX428C14SB2K4/16             | SS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX428C14SB2K2/8              | SS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX428C14SB2/4                | SS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14PBK4/32              | DS    |            |           | CL14        | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14SB2K4/32             | DS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14SB2K2/16             | DS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14SB2/8                | DS    | SKhynix    |           | C14         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14PBK8/64              | DS    |            |           | C14         | 1.35v   | v | v | v | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX428C14SB2K8/64             | DS    |            |           | C14         | 1.35v   | v | v | v | v   | 2133   |
| KLEVV           | 4GB     | 1Rx8                      | KM4C4GX4N-2800-16-16-16-36-0 | SS    |            |           | 16-16-16-36 | 1.2v    | v | v | v | v   | 2133   |
| KLEVV           | 8GB     | 2Rx8                      | KM4C8GX4N-2800-16-16-16-36-0 | DS    |            |           | 16-16-16-36 | 1.2v    | v | v | v | v   | 2133   |
| PATRIOT         | 4GB     | 1Rx8                      | PV48G280C6K                  | SS    |            |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| PATRIOT         | 4GB     | 1Rx8                      | PVE48G280C6KGY               | SS    |            |           | CL16        | 1.2v    | v | v | v | v   | 2133   |
| PATRIOT         | 8GB     | 2Rx8                      | PV416G280C6K                 | DS    |            |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| Panram          | 4GB     | 1Rx8                      | PUD42800C164G4NJW            | SS    | SKhynix    |           | 16-18-18-36 | 1.25v   | v | v | v | v   | 2133   |

DDR4 2666MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.         | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|---------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                     |       |            |           |             |         | 2 | 4 | 8 |     |        |
| ADATA           | 4GB     | 1Rx8                      | AX4U2666W4G16-DRZ   | SS    | SKhynix    |           | 16-16-16    | 1.2v    | v | v |   | v   | 2133   |
| ADATA           | 8GB     | 2Rx8                      | AX4U2666W8G16-QRZ   | DS    | SKhynix    |           | 16-16-16    | 1.2v    | v | v | v | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4U26661504G-4CIR | SS    |            |           | CL15        | 1.2v    | v | v |   | v   | 2133   |
| Avexir          | 8GB     | 2Rx8                      | AVD4U26661608G-4CIR | DS    |            |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| Apacer          | 4GB     | 1Rx8                      | AHU04GGB26CDT6H     | SS    |            |           | 16-16-16-36 | 1.2v    | v | v |   | v   | 2133   |
| Apacer          | 8GB     | 2Rx8                      | AHU08GGB26CDT6H     | DS    |            |           | 16-16-16-36 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2666C15  | SS    | Samsung    |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2666C16  | SS    | Samsung    |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4A2666C15  | SS    | Samsung    |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4A2666C16  | SS    | Samsung    |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD8GX4M2A2666C15   | SS    |            |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4A2666C15  | DS    | Samsung    |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD32GX4M4A2666C15  | DS    | Samsung    |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD32GX4M4A2666C16  | DS    | Samsung    |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4A2666C16R | DS    | Samsung    |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK16GX4M2A2666C16  | DS    |            |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD16GX4M2A2666C15  | DS    |            |           | 15-17-17-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK64GX4M8A2666C16  | DS    | Samsung    |           | 16-18-18-35 | 1.2     | v | v | v | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK32GX4M2A2666C16  | DS    |            |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK64GX4M4A2666C16  | DS    | Samsung    |           | 16-18-18-35 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMD128GX4M8A2666C15 | DS    | Samsung    |           | 15-17-17-35 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK128GX4M8A2666C16 | DS    | Samsung    |           | 16-18-18-35 | 1.2     | v | v |   | v   | 2133   |
| CRUCIAL         | 4GB     | 1Rx8                      | BLT4G4D26AFTA.8FADG | SS    |            |           | 16-17-17-36 | 1.2v    | v | v | v | v   | 2400   |
| CRUCIAL         | 4GB     | 1Rx8                      | BLE4G4D26AFE.8FADG  | SS    |            |           | 16-17-17-36 | 1.2v    | v | v | v | v   | 2400   |
| CRUCIAL         | 8GB     | 2Rx8                      | BLT8G4D26AFTA.16FAD | DS    | Micron     |           | 16-17-17-36 | 1.2v    | v | v | v | v   | 2400   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-2666C15Q-16GRR   | SS    |            |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2666C15Q-32GRR   | DS    | SKhynix    |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2666C16Q2-64GRB  | DS    | SKhynix    |           | 16-16-16-36 | 1.2v    | v | v | v | v   | 2133   |

|         |      |      |                              |    |         |  |             |       |   |   |   |   |      |
|---------|------|------|------------------------------|----|---------|--|-------------|-------|---|---|---|---|------|
| HyperX  | 4GB  | 1Rx8 | HX426C13PB2K4/16             | SS |         |  | CL13        | 1.35v | v | v | v | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C13SB2K4/16             | SS | SKhynix |  | CL13        | 1.35v | v | v | v | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C13SB2K2/8              | SS | SKhynix |  | CL13        | 1.35v | v | v |   | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C13SB2/4                | SS | SKhynix |  | CL13        | 1.35v | v | v |   | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C15FBK4/16              | SS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C15FBK2/8               | SS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2133 |
| HyperX  | 4GB  | 1Rx8 | HX426C15FB/4                 | SS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2133 |
| HyperX  | 8GB  | 2Rx8 | HX426C13PBK4/32              | DS | SKhynix |  | CL13        | 1.35v | v | v | v | v | 2133 |
| HyperX  | 8GB  | 2Rx8 | HX426C15FBK2/16              | DS | SKhynix |  | CL15        | 1.2   | v | v | v | v | 2666 |
| HyperX  | 8GB  | 2Rx8 | HX426C13SB2K4/32             | DS | SKhynix |  | CL13        | 1.35v | v | v |   | v | 2133 |
| HyperX  | 8GB  | 2Rx8 | HX426C13SB2K2/16             | DS | SKhynix |  | CL13        | 1.35v | v | v |   | v | 2133 |
| HyperX  | 8GB  | 2Rx8 | HX426C13SB2/8                | DS | SKhynix |  | CL13        | 1.35v | v | v |   | v | 2133 |
| HyperX  | 8GB  | 2Rx8 | HX426C15FBK4/32              | DS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2666 |
| HyperX  | 8GB  | 2Rx8 | HX426C15FBK2/16              | DS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2666 |
| HyperX  | 8GB  | 2Rx8 | HX426C15FB/8                 | DS | SKhynix |  | CL15        | 1.2v  | v | v |   | v | 2666 |
| HyperX  | 16GB | 2Rx8 | HX426C15SBK8/128             | DS | SKhynix |  | CL15        | 1.2v  | v | v | v | v | 2133 |
| PATRIOT | 4GB  | 1Rx8 | PVE48G266C5KBL               | SS |         |  | CL15        | 1.2v  | v | v | v | v | 2133 |
| KLEVV   | 4GB  | 1Rx8 | KM4C4GX4N-2666-15-15-15-35-0 | SS |         |  | 15-15-15-35 | 1.2v  | v | v |   | v | 2133 |

DDR4 2400MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.           | SS/DS | Chip Brand | Chip P/N. | Timing      | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|-----------------------|-------|------------|-----------|-------------|---------|---|---|---|-----|--------|
|                 |         |                           |                       |       |            |           |             |         | 2 | 4 | 8 |     |        |
| ADATA           | 4GB     | 1Rx8                      | AX4U2400W4G16-QRZ     | SS    | SKHynix    |           | 16-16-16-39 | 1.2v    | v | v | v | v   | 2133   |
| ADATA           | 4GB     | 1Rx8                      | AD4U2400W4G17-B       | SS    | SKHynix    |           |             | 1.2v    | v | v | v |     | 2400   |
| ADATA           | 8GB     | 2Rx8                      | AX4U2400W8G16-QRZ     | DS    | SKHynix    |           | 16-16-16-39 | 1.2v    | v | v | v | v   | 2133   |
| ADATA           | 8GB     | 2Rx8                      | AD4U2400W8G17-B       | DS    | SKHynix    |           |             | 1.2v    | v | v | v |     | 2400   |
| Apacer          | 4GB     | 1Rx8                      | 78.B1GMS.4050B        | SS    | Samsung    |           | CL17        | 1.2v    | v | v |   |     | 2400   |
| Apacer          | 8GB     | 2Rx8                      | 78.C1GMS.4010B        | DS    | Samsung    |           | CL17        | 1.2v    | v | v |   |     | 2400   |
| Apacer          | 8GB     | 2Rx8                      | AU08GGB24CETBGC       | DS    |            |           | CL17        | 1.2v    | v | v | v |     | 2400   |
| Avexir          | 4GB     | 1Rx8                      | AVD4U24001604G-4M     | SS    | SKHynix    |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| Avexir          | 4GB     | 1Rx8                      | AVD4UZ124001604G-2COB | SS    | Spectek    |           | CL16        | 1.2v    | v | v | v | v   | 2133   |
| Avexir          | 8GB     | 2Rx8                      | AVD4U24001608G-4M     | DS    | SKHynix    |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| Avexir          | 8GB     | 2Rx8                      | AVD4UZ124001608G-2COB | DS    | Spectek    |           | CL16        | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2400C14    | SS    | Samsung    |           | 14-16-16-31 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4A2400C14    | SS    | Samsung    |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4A2400C14    | DS    | Samsung    |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMD32GX4M4A2400C14    | DS    | Samsung    |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 1Rx8                      | CMD64GX4M8A2400C14    | SS    |            |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 8GB     | 2Rx8                      | CMK64GX4M8A2400C14    | DS    |            |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK128GX4M8A2400C14   | DS    |            |           | 14-16-16-31 | 1.2v    | v | v | v | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMK64GX4M4A2400C14    | DS    |            |           | 14-16-16-31 | 1.2v    | v | v |   | v   | 2133   |
| CORSAIR         | 16GB    | 2Rx8                      | CMD128GX4M8A2400C14   | DS    |            |           | 14-16-16-31 | 1.2v    | v | v | v | v   | 2133   |
| CRUCIAL         | 4GB     | 1Rx8                      | BLS4G4D240FSB.8FADG   | SS    | Micron     |           | 16-16-16-39 | 1.2v    | v | v |   | v   | 2400   |
| CRUCIAL         | 8GB     | 2Rx8                      | BLS8G4D240FSB.16FARG  | DS    | Micron     |           | 16-16-16-39 | 1.2v    | v | v | v | v   | 2400   |
| CRUCIAL         | 8GB     | 2Rx8                      | BLS8G4D240FSA.16FARG  | DS    | Micron     |           | 16-16-16-39 | 1.2v    | v | v | v | v   | 2400   |
| CRUCIAL         | 8GB     | 1Rx8                      | CT8G4DFS824A.8FB1     | SS    | Micron     |           | CL17        | 1.2v    | v | v |   |     | 2400   |
| CRUCIAL         | 8GB     | 2Rx8                      | CT8G4WFD824A.18FB1    | DS    | Micron     |           | CL17        | 1.2v    | v | v |   |     | 2400   |
| CRUCIAL         | 16GB    | 2Rx8                      | BLS16G4D240FSB.16FAD  | DS    | Micron     |           | 16-16-16-39 | 1.2v    | v | v |   | v   | 2400   |
| CRUCIAL         | 16GB    | 2Rx8                      | CT16G4WFD824A.18FB1   | DS    | Micron     |           | CL17        | 1.2v    | v | v | v |     | 2400   |
| G.SKILL         | 4GB     | 1Rx8                      | F4-2400C15Q-16GRR     | SS    | Micron     |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2400C15Q-32GRR     | DS    | Micron     |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2400C15Q2-64GRK    | DS    |            |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-2400C15Q2-128GRK   | DS    |            |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| G.SKILL         | 16GB    | 2Rx8                      | F4-2400C14Q2-128GRK   | DS    |            |           | 14-14-14-34 | 1.2v    | v | v | v | v   | 2133   |
| GEIL            | 4GB     | 1Rx8                      | GPB416GB2400C15QC     | SS    |            |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| GEIL            | 8GB     | 2Rx8                      | GPR432GB2400C15QC     | DS    |            |           | 15-15-15-35 | 1.2v    | v | v | v | v   | 2133   |
| GALAX           | 4GB     | 1Rx8                      | GAM4BXLBS240016JE164C | SS    |            |           | 16-16-16-36 | 1.2v    | v | v |   | v   | 2133   |
| GALAX           | 4GB     | 1Rx8                      | HOF4BLBM240012FD041C  | SS    |            |           | 12-12-12-28 | 1.35v   | v | v |   | v   | 2133   |
| GLOWAY          | 8GB     | 2Rx8                      | 8G-2400               | DS    |            |           | 15-15-15-35 | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C12SB2K4/16      | SS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C12SB2K2/8       | SS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C12SB2/4         | SS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C15FBK4/16       | SS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C15FBK2/8        | SS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 4GB     | 1Rx8                      | HX424C15FB/4          | SS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C12PBK4/32       | DS    | SKhynix    |           | CL12        | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C12SB2K4/32      | DS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C12SB2K2/16      | DS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C12SB2/8         | DS    | SKhynix    |           | C12         | 1.35v   | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C15FB/8          | DS    | SKhynix    |           | C15         | 1.2v    | v | v | v | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C15FBK4/32       | DS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C15FBK2/16       | DS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 2Rx8                      | HX424C15FB/8          | DS    | SKhynix    |           | C15         | 1.2v    | v | v |   | v   | 2133   |
| HyperX          | 8GB     | 1Rx8                      | HX424C15FB2K4/32      | SS    |            |           | C15         | 1.2v    | v | v | v | v   | 2133   |
| HyperX          | 8GB     | 1Rx8                      | HX424C15FB2K2/16      | SS    |            |           | C15         | 1.2v    | v | v | v |     |        |
| HyperX          | 8GB     | 1Rx8                      | HX424C15FB2/8         | SS    |            |           | C15         | 1.2v    | v | v | v | v   | 2133   |
| HyperX          | 16GB    | 2Rx8                      | HX424C15FBK4/64       | DS    |            |           | C15         | 1.2v    | v | v | v | v   | 2133   |
| HyperX          | 16GB    | 2Rx8                      | HX424C15FBK2/32       | DS    |            |           | C15         | 1.2v    | v | v | v | v   | 2133   |
| HyperX          | 16GB    | 2Rx8                      | HX424C15FB/16         | DS    |            |           | C15         | 1.2v    | v | v | v | v   | 2133   |

|         |     |      |                   |    |         |  |             |      |   |   |   |   |      |
|---------|-----|------|-------------------|----|---------|--|-------------|------|---|---|---|---|------|
| PATRIOT | 4GB | 1Rx8 | PX416G240C5QK     | SS |         |  | 15-15-15-35 | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 4GB | 1Rx8 | PX48G240C5K       | SS |         |  | 15-15-15-35 | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 4GB | 1Rx8 | PV48G240C5K       | SS |         |  | CL15        | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 4GB | 1Rx8 | PVE48G240C5KRD    | SS |         |  | CL15        | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 8GB | 2Rx8 | PV432G240C5QK     | DS |         |  | 15-15-15-35 | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 8GB | 2Rx8 | PX432G240C5QK     | DS |         |  | 15-15-15-35 | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 8GB | 2Rx8 | PX416G240C5K      | DS |         |  | 15-15-15-35 | 1.2v | v | v | v | v | 2133 |
| PATRIOT | 8GB | 2Rx8 | PV416G240C5K      | DS |         |  | CL15        | 1.2v | v | v | v | v | 2133 |
| Panram  | 4GB | 1Rx8 | PUD42400C154G4NJW | SS | SKhynix |  | 15-15-15-35 | 1.2v | v | v | v | v | 2400 |
| Panram  | 8GB | 2Rx8 | PUD42400C158G4NJW | DS | SKhynix |  | 15-15-15-35 | 1.2v | v | v | v | v | 2400 |
| Team    | 8GB | 2Rx8 | TED48G2400C16BK   | DS |         |  | 16-16-16-39 | 1.2v | v | v | v | v | 2400 |
| V-Color | 4GB | 1Rx8 | TD4G8C17-UH       | SS |         |  | CL17        | 1.2v | v | v | v | v | 2400 |
| V-Color | 8GB | 2Rx8 | TD8G16C17-UH      | DS |         |  | CL17        | 1.2v | v | v | v | v | 2400 |

DDR4 2133MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.           | SS/DS | Chip Brand | Chip P/N.        | Timing      | Voltage | Memory socket support |   |   | XMP | Native |
|-----------------|---------|---------------------------|-----------------------|-------|------------|------------------|-------------|---------|-----------------------|---|---|-----|--------|
|                 |         |                           |                       |       |            |                  |             |         | 2                     | 4 | 8 |     |        |
| ADATA           | 4GB     | 1Rx8                      | AD4U2133W4G15-B       | SS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| ADATA           | 8GB     | 2Rx8                      | AD4U2133W8G15-B       | DS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Apacer          | 4GB     | 1Rx8                      | 78.B1GM3.AF00B        | SS    |            |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Apacer          | 8GB     | 2Rx8                      | 78.C1GM3.AF10B        | DS    |            |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 4GB     | 1Rx8                      | CMV4GX4M1A2133C15     | SS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 4GB     | 1Rx8                      | CMK16GX4M4A2133C13    | SS    |            |                  | 13-15-15-28 | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 4GB     | 1Rx8                      | CMD16GX4M4B2133C10    | SS    |            |                  | 10-12-12-31 | 1.35v   | v                     | v |   |     | v      |
| CORSAIR         | 8GB     | 2Rx8                      | CMV8GX4M1A2133C15     | DS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| CORSAIR         | 8GB     | 2Rx8                      | CMK32GX4M4A2133C13    | DS    |            |                  | 13-15-15-28 | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 8GB     | 2Rx8                      | CMK64GX4M8A2133C13    | DS    |            |                  | 13-15-15-28 | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 16GB    | 2Rx8                      | CMV16GX4M1A2133C15    | DS    |            |                  | C15         | 1.2v    | v                     | v | v |     | v      |
| CORSAIR         | 16GB    | 2Rx8                      | CMK32GX4M2A2133C13    | DS    |            |                  | 13-15-15-28 | 1.2v    | v                     | v |   |     | v      |
| CORSAIR         | 16GB    | 2Rx8                      | CMK128GX4M8A2133C13   | DS    |            |                  | 13-15-15-28 | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 4GB     | 1Rx8                      | CT4G4DFS8213.C8FAR1   | SS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 4GB     | 1Rx8                      | CT4G4WFS8213.9FA1     | SS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 4GB     | 1Rx8                      | CT4G4DFS8213.8FA2     | SS    | Micron     |                  |             | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 8GB     | 2Rx8                      | CT8G4WFD8213          | DS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 8GB     | 2Rx8                      | CT8G4DFD8213.16FA2    | DS    | Micron     |                  |             | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 8GB     | 2Rx8                      | CT8G4DFD8213.C16FAR11 | DS    | Micron     |                  |             | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 8GB     | 1Rx8                      | CT8G4DFS8213.8FB1     | SS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 16GB    | 2Rx8                      | CT16G4DFD8213.16FB1   | DS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| G.SKILL         | 4GB     | 1Rx8                      | F4-2133C15Q-16GRR     | SS    | Micron     |                  | 15-15-15-35 | 1.2v    | v                     | v |   |     | v      |
| G.SKILL         | 8GB     | 2Rx8                      | F4-2133C15Q-32GRR     | DS    | Micron     |                  | 15-15-15-35 | 1.2v    | v                     | v | v |     | v      |
| GEIL            | 4GB     | 1Rx8                      | GPR416GB2133C15QC     | SS    |            |                  | 15-15-15-36 | 1.2v    | v                     | v | v |     | v      |
| GLOWAY          | 4GB     | 1Rx8                      | 4G-2133               | SS    |            |                  | 15-15-15-35 | 1.2v    | v                     | v |   |     | v      |
| HyperX          | 4GB     | 1Rx8                      | HX421C13SBK4/16       | SS    | SKhynix    |                  | CL13        | 1.2v    | v                     |   |   |     | v      |
| HyperX          | 4GB     | 1Rx8                      | HX421C13SBK2/8        | SS    | SKhynix    |                  | CL13        | 1.2v    | v                     |   |   |     | v      |
| HyperX          | 4GB     | 1Rx8                      | HX421C14FBK4/16       | SS    | SKhynix    |                  | CL14        | 1.2v    | v                     | v | v |     | v      |
| HyperX          | 4GB     | 1Rx8                      | HX421C14FBK2/8        | SS    | SKhynix    |                  | CL14        | 1.2v    | v                     | v |   |     | v      |
| HyperX          | 8GB     | 2Rx8                      | HX421C13SBK4/32       | DS    | SKhynix    |                  | CL13        | 1.2v    | v                     | v |   |     | v      |
| HyperX          | 8GB     | 2Rx8                      | HX421C13SBK2/16       | DS    | SKhynix    |                  | CL13        | 1.2v    | v                     | v |   |     | v      |
| HyperX          | 8GB     | 2Rx8                      | HX421C14FBK4/32       | DS    | SKhynix    |                  | CL14        | 1.2v    | v                     | v | v |     | v      |
| HyperX          | 8GB     | 2Rx8                      | HX421C14FBK2/16       | DS    | SKhynix    |                  | CL14        | 1.2v    | v                     |   |   |     | v      |
| HyperX          | 8GB     | 1Rx8                      | HX421C14FB2K4/32      | SS    |            |                  | CL14        | 1.2v    | v                     | v |   |     | 2133   |
| HyperX          | 8GB     | 1Rx8                      | HX421C14FB2K2/16      | SS    |            |                  | CL14        | 1.2v    | v                     |   |   |     | 2133   |
| HyperX          | 16GB    | 2Rx8                      | HX421C14FBK4/64       | DS    |            |                  | CL14        | 1.2v    | v                     | v | v |     | 2133   |
| HyperX          | 16GB    | 2Rx8                      | HX421C14FBK2/32       | DS    |            |                  | CL14        | 1.2v    | v                     |   |   |     | 2133   |
| Kingston        | 4GB     | 1Rx8                      | KVR21N15S8/4          | SS    | SKhynix    |                  |             | 1.2v    | v                     | v |   |     | v      |
| Kingston        | 4GB     | 1Rx8                      | KVR21N15S8/4          | SS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Kingston        | 4GB     | 1Rx8                      | KVR21E15S8/4          | SS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Kingston        | 8GB     | 2Rx8                      | KVR21N15D8/8          | DS    | SKhynix    |                  |             | 1.2v    | v                     | v |   |     | v      |
| Kingston        | 8GB     | 2Rx8                      | KVR21N15D8/8          | DS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v | v |     | v      |
| Kingston        | 8GB     | 2Rx8                      | KVR21E15D8/8HA        | DS    | SKhynix    |                  | CL15        | 1.2v    | v                     | v |   |     | 2133   |
| Kingston        | 16GB    | 2Rx8                      | KVR21N15D8/16         | DS    | Micron     |                  | CL15        | 1.2v    | v                     | v | v |     | 2133   |
| KLEVV           | 4GB     | 1Rx8                      | KM4C4GX4N             | SS    |            |                  | 15-15-15-35 | 1.2v    | v                     | v | v |     | v      |
| Panram          | 4GB     | 1Rx8                      | PUD42133C154G2VS      | SS    | SKhynix    |                  | 15-15-15-36 | 1.2v    | v                     | v |   |     | v      |
| Panram          | 4GB     | 1Rx8                      | PED42133C154GVS       | SS    | SKhynix    |                  | 15-15-15-36 | 1.2v    | v                     | v |   |     | v      |
| Panram          | 8GB     | 2Rx8                      | PUD42133C138G4NJW     | DS    | SKhynix    |                  | 13-13-13-35 | 1.2v    | v                     | v |   |     | v      |
| Panram          | 8GB     | 2Rx8                      | PED42133C158GVS       | DS    | SKhynix    |                  | 15-15-15-36 | 1.2v    | v                     | v | v |     | v      |
| Silicon POWER   | 4GB     | 1Rx8                      | SP004GBLFU213N01      | SS    | Samsung    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Silicon POWER   | 8GB     | 2Rx8                      | SP008GBLFU213N01      | DS    | Samsung    |                  | CL15        | 1.2v    | v                     | v |   |     | v      |
| Team            | 8GB     | 2Rx8                      | TED48GM2133C15BK      | DS    | SKhynix    | H5AN4G8NMFR 523V | 15-15-15-36 | 1.2v    | v                     | v | v |     | v      |

RDIMM DDR4 2133MHz

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.       | SS/DS | Chip Brand | Chip P/N.  | Timing | Voltage | Memory socket support |   |   | XMP | Native |
|-----------------|---------|---------------------------|-------------------|-------|------------|------------|--------|---------|-----------------------|---|---|-----|--------|
|                 |         |                           |                   |       |            |            |        |         | 2                     | 4 | 8 |     |        |
| CRUCIAL         | 4GB     | 1Rx8                      | CT4G4RFS8213.9FA2 | DS    | Micron     | 41A77D9RGQ |        | 1.2v    | v                     | v | v |     | v      |
| CRUCIAL         | 8GB     | 1Rx4                      | CT8G4RFS4213      | DS    | Micron     |            | CL15   | 1.2     | v                     | v | v |     | v      |

|          |      |      |                     |    |         |  |      |      |   |   |   |  |   |
|----------|------|------|---------------------|----|---------|--|------|------|---|---|---|--|---|
| CRUCIAL  | 16GB | 2Rx4 | CT16G4RFD4213       | DS | Micron  |  | CL15 | 1.2  | v | v | v |  | v |
| CRUCIAL  | 16GB | 2Rx4 | CT16G4RFD4213.36FB1 | DS | Micron  |  | CL15 | 1.2  | v | v | v |  | v |
| Kingston | 8GB  | 1Rx4 | KVR21R15S4/8        | DS | SKhynix |  | CL15 | 1.2  | v | v | v |  | v |
| Kingston | 16GB | 2Rx4 | KVR21R15D4/16       | DS | SKhynix |  | CL15 | 1.2  | v | v | v |  | v |
| SAMSUNG  | 8GB  | 1Rx4 | M393A1G40DB0-CPB    | DS | Samsung |  |      | 1.2v | v | v | v |  | v |
| SAMSUNG  | 16GB | 2Rx4 | M393A2G40DB0-CPB    | DS | Samsung |  |      | 1.2v | v | v | v |  | v |

**RDIMM DDR4 2400MHz**

| Module Supplier | Density | # of Ranks x DRAM devices | Module P/N.         | SS/DS | Chip Brand | Chip P/N. | Timing | Voltage |   |   |   | XMP | Native |
|-----------------|---------|---------------------------|---------------------|-------|------------|-----------|--------|---------|---|---|---|-----|--------|
|                 |         |                           |                     |       |            |           |        |         | 2 | 4 | 8 |     |        |
| CRUCIAL         | 8GB     | 1Rx4                      | CT8G4RFS424A.18FB1  | DS    | Micron     |           | CL17   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 8GB     | 2Rx8                      | CT8G4RFD824A.18FB1  | DS    | Micron     |           | CL17   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 16GB    | 2Rx4                      | CT16G4RFD424A.36FB1 | DS    | Micron     |           | CL17   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 16GB    | 1Rx4                      | CT16G4RFS424A.18FB1 | DS    | Micron     |           | CL17   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 16GB    | 2Rx8                      | CT16G4RFD824A.18FB1 | DS    | Micron     |           | CL17   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 32GB    | 2Rx4                      | CT32G4RFD424A       | DS    | Micron     |           | CL16   | 1.2v    | v | v | v |     | v      |
| CRUCIAL         | 32GB    | 2Rx4                      | CT32G4RFD424A.36FB1 | DS    | Micron     |           |        | 1.2v    | v | v | v |     | v      |

• When running XMP at **DDR4 3200 MHz or higher**, the system's stability depends on the CPU's capabilities.

當執行XMP至**DDR4 3200MHz或更高**，系統的穩定性會依據CPU的效能而有所差異

• Memory modules listed as above is for reference only. Due to massive memory models in market, we can only verify some of them.

以下所列的記憶體模組僅供參考，因市面上的記憶體模組眾多，我們無法一一驗證

• When enabling Dual Channel mode with two, four or eight memory modules, it is recommended that using the same capacity, brand, speed, and chips of memory modules and also installed in the same color of DDR4 slots.

若要安裝兩支，四支或八支DDR4記憶體模組，建議您使用相同容量/廠牌/速度/顆粒等之記憶體模組。